SEQUENCE LISTING

<110> PARDO-FERNANDEZ, LUIS ANGEL
      STUHMER, WALTER
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      BRUGGEMANN, ANDREA
      FERNANDEZ-MIRANDA, DONATO DEL CAMINO
      PEREZ, ARACELI SANCHEZ
      WESELOH, RUDIGER

<120> NOVEL HUMAN K+ ION CHANNEL AND THERAPEUTIC APPLICATIONS
      THEREOF

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<141> 2000-10-23

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<151> 1999-04-21

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<170> PatentIn Ver. 2.1

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Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
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Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
    50   55   60

Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
65   70   75   80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                85   90   95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
                100   105   110

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Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
        130             135             140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145             150             155             160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
            165             170             175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
            180             185             190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195             200             205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
        210             215             220

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225             230             235             240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
            245             250             255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260             265             270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
            275             280             285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
        290             295             300

Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser
305             310             315             320

Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg
            325             330             335

Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu
            340             345             350

Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys
        355             360             365

Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys
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Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly
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Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly
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Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile
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Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr
  450   455   460

Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala
465   470   475   480

Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser Val Arg Asp Phe Leu
    485   490   495

Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr
   500   505   510

Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val
   515   520   525

Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp Ile Cys Val His Leu
  530   535   540

Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp
545   550   555   560

Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln Thr Val His Cys Ala
    565   570   575

Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys
   580   585   590

Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val
   595   600   605

Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu
  610   615   620

Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys
625   630   635   640

Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe
    645   650   655

Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr
   660   665   670

Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg
  675   680   685

Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu
  690   695   700

Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln
705   710   715   720

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Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp
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Leu Asp Val Glu Lys Gly Asn Val Leu Thr Glu His Ala Ser Ala Asn
            740             745             750

His Ser Leu Val Lys Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala
            755             760             765

Thr Pro Val Ser Phe Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His
    770             775             780

Ala Lys Leu Gln Ala Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly
785             790             795             800

Gly Gly Asp Cys Ala Lys Arg Lys Ser Trp Ala Arg Phe Lys Asp Ala
            805             810             815

Cys Gly Lys Ser Glu Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met
            820             825             830

Glu Thr Leu Pro Glu Arg Thr Lys Ala Ser Gly Glu Ala Thr Leu Lys
            835             840             845

Lys Thr Asp Ser Cys Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu
    850             855             860

Asp Asn Val Gly Glu Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu
865             870             875             880

Ala Glu Val Lys His Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln
            885             890             895

Ala Thr Val Leu Glu Val Arg His Glu Leu Lys Glu Asp Ile Lys Ala
            900             905             910

Leu Asn Ala Lys Met Thr Asn Ile Glu Lys Gln Leu Ser Glu Ile Leu
            915             920             925

Arg Ile Leu Thr Ser Arg Arg Ser Ser Gln Ser Pro Gln Glu Leu Phe
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Glu Ile Ser Arg Pro Gln Ser Pro Glu Ser Glu Arg Asp Ile Phe Gly
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Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
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Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
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Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
100 105 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
115 120 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
130 135 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145 150 155 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
165 170 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
180 185 190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
195 200 205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
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Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
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Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
245 250 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
260 265 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
275 280 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
290 295 300

Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala
305 310 315 320

Phe Met Gly Asp Pro Gly Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro
                325   330   335

Pro Leu Glu Gly Arg Glu Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser
                340   345   350

Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu
                355   360   365

Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys
    370   375   380

Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile
385   390   395   400

Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn
                405   410   415

Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe
                420   425   430

Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser
                435   440   445

Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val
    450   455   460

Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala
465   470   475   480

Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly
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Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr
                500   505   510

His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val
                515   520   525

Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp
    530   535   540

Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro
545   550   555   560

Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe
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Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala
                580   585   590

Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile
                595   600   605

Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly
    610   615   620

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Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val Ala Ile Leu Gly Lys
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Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu Ala Thr Leu Ala Gln
                645             650             655

Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile
            660             665             670

Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser
        675             680             685

His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg
    690             695             700

Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Glu Arg
705             710             715             720

Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro
            725             730             735

Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu
        740             745             750

Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp Leu Asp Val Glu Lys
    755             760             765

Gly Asn Val Leu Thr Glu His Ala Ser Ala Asn His Ser Leu Val Lys
    770             775             780

Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ser Phe
785             790             795             800

Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His Ala Lys Leu Gln Ala
            805             810             815

Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly Gly Gly Asp Cys Ala
        820             825             830

Lys Arg Lys Ser Trp Ala Arg Phe Lys Asp Ala Cys Gly Lys Ser Glu
    835             840             845

Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met Glu Thr Leu Pro Glu
    850             855             860

Arg Thr Lys Ala Ser Gly Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys
865             870             875             880

Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu
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Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His
        900             905             910

Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Thr Val Leu Glu
    915             920             925
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Val Arg His Glu Leu Lys Glu Asp Ile Lys Ala Leu Asn Ala Lys Met
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Thr Asn Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser
945             950             955             960
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Arg Arg Ser Ser Gln Ser Pro Gln Glu Leu Phe Glu Ile Ser Arg Pro
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<223> Description of Artificial Sequence: Synthetic DNA


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<210> 10
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 10
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<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 11
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<210> 12
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 12
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<210> 13
<211> 2886
<212> DNA
<213> Homo sapiens

<400> 13
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<212> DNA
<213> Homo sapiens

<400> 14

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<223> Description of Artificial Sequence: Antisense
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